Attorney Docket No. P66870US1
Application No. 10/725,679

Remarks/Arguments:

Claim 28, currently amended, claim 29, previously presented, and claims 32 and 33, newly presented, are pending.

Claims 12-27, 30, and 31 were withdrawn, pursuant to restriction.

Claims 1-11, 30 and 31 are canceled, without prejudice or disclaimer.

Claim 28 is amended to correct a readily apparent clerical error.

New claim 32 corresponds to claim 28 amended to exclude the use of chaotropic substances from the chromatographic separation, as inherently described in the subject application (Example 9), as explained below.

Claims 28 and 29 were rejected under 35 USC 103(a) as being allegedly unpatentable over U.S. 4,045,353 (Kosaka) in view of EP0648777 (EP'777) and U.S. Patent No. 5,744,257 (Carstens). Reconsideration is requested.

To establish *prima facie* obviousness of a claimed invention, all the claim limitations must be taught or suggested by the prior art. *In re Royka*, 490 F.2d 981, 180 USPQ 580 (CCPA 1974).

> In order to establish a *prima facie* case of obviousness, it is necessary for the examiner to present *evidence*,[1] preferably in the form of some teaching, suggestion, incentive or inference in the applied prior art, that one having ordinary skill in the art *would have been led* to combine the relevant teachings of the applied references in the proposed manner to arrive at the claimed invention [*citations, omitted*].

Ex parte Levengood, 28 USPQ2d 1300, 1300-01 (BPA&I 1993)(*emphasis in original*).

The "evidence upon which the examiner relies must clearly indicate that a worker of routine skill in this art would view the claimed invention as being obvious." *Ex parte Wolters*, 214 USPQ

735, 736 (BPA&I 1982). "It is facts which must support the legal conclusion of obviousness." *Ex parte Crissy*, 201 USPQ 689, 695 (POBdApp 1976).

> The Patent Office has the initial duty of supplying the factual basis for its rejection. It may not, because *it* may *doubt* that the invention is patentable, resort to speculation, unfounded assumptions or hindsight reconstruction to supply deficiencies in the factual basis.

In re Warner, 154 USPQ 173, 178 (CCPA 1967) (*emphasis in original*). An argument by the PTO is "not prior art." *In re Rijckaert*, 28 USPQ2d 1955, 1957 (Fed. Cir. 1993).

> It is impermissible within the framework of §103 to pick and choose from any one reference only so much of it as will support a given position, to the exclusion of other parts necessary to the full appreciation of what such reference fairly suggests to one of ordinary skill in the art.

In re Hedges, 228 USPQ 685, 687 (Fed. Cir. 1986).

The fact that all elements of a claimed invention are known does not, by itself, make the combination obvious. *Ex parte Clapp*, 227 USPQ 972 (BPA&I 1985). "There must be something in the prior art to suggest the desirability, and thus the obviousness, of making the combination. *Interconnect Planning Corp. v. Feil*, 227 USPQ 543, 551 (Fed. Cir. 1985).

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In re Hedges, 228 USPQ 685, 687 (Fed. Cir. 1986).

In an obviousness analysis, a reference can not be combined with another reference in such a way that destroys the invention on which one of the references is based. *Ex parte Hartmann*, 186 USPQ 366 (POBdApp 1974).

According to the statement of rejection (Office Action, page 3) :

> It would be obvious to one of ordinary skill in the art at the time of invention to use the teaching of EP-777 in the teaching of Kosaka to separate DNA etc., because fluorinated surfaces are taught as being particularly useful for separation, isolation and purification of DNA from other cellular components by EP-777 (see lines 45-50, page 2), and the process is carried out in one step (see example 2 of EP).

The rejection cannot be maintained since the alleged motivation to combine Kosaka and EP'777—"because fluorinated surfaces are taught as being particularly useful for separation, isolation and purification of DNA from other cellular components by EP-777"—inaccurately reflects the teachings of the cited reference.

EP'777 (page 3) teaches (emphasis added):

> In general, the fluorinated surfaces of the present invention are prepared by reacting a suitable fluoride with the desired surface. Any fluoride, preferably sodium fluoride and tetrabutylammonium fluoride, may be utilized in this reaction. It is preferred to use tetrabutylammonium fluoride. Suitable surfaces include those which bind DNA but fail to elute it.

On the other hand, Kosaka discloses a surface ("solid support") for chromatography having "high separation ability." Accordingly, one skilled in the art would not have used the Kosaka surface having "high separation ability" in place of the surface EP'777 surface that binds "DNA but fails to elute it." The fact that all elements of a claimed invention are known does not, by itself, make the combination obvious. *Clapp, supra.*

The statement of rejection impermissibly selects from EP'777 only so much as supports its position, "to the exclusion of other parts necessary to the full appreciation of what such reference fairly teaches to one of ordinary skill in the art. *Hedges*, 228 USPQ at 687. It is the combined

teachings of the prior art, taken as a whole, which must be considered in an obviousness analysis. *Ryko Manufacturing Co. v. Nu-Star, Inc.*, 21 USPQ2d 1053 (Fed. Cir. 1991). "One cannot use hindsight reconstruction to pick and choose among isolated disclosures in the prior art to deprecate the claimed invention." *In re Fine*, 5 USPQ2d 1596, 1600 (Fed. Cir. 1988). An argument by the PTO is "not prior art." *Rijckaert*, 28 USPQ2d at 1957. Withdrawal of the rejection appears to be in order.

New claims 32 and 33 contain, *i.a.*, the subject matter of claims 28 and 29, respectively. As such, claims 32 and 33 cannot be subject to the rejection under §103(a) for the same reasons, set forth above, that claims 28 and 29 are incorrecly subject to the rejection under §103(a). Claims 32 and 33 are further patentable over the cited references, because of the negative limitation—not found in claims 28 and 28—of performing the chromatographic separation "in the absence of chaotropic substances."

EP'777 discloses an invention, whereby chaotropic agents ("chaotropes") are used in the buffer for eluting nucleic acids from a fluorinated solid phase. For example, EP'777 (page 2, lines 31-34 and 45-49) teaches (emphasis added):

> Currently, the solid phase of choice for solid phase extraction of DNA is Celite . . . [and] high concentrations of chaotropes are required for adequate binding of the DNA to the Celite. . . .
>
> The fluorinated surfaces of the present invention are particularly useful in processes for purification of DNA from other cellular components. In these processes, a suspension of cellular components is placed in contact with the fluorinated surface, the fluorinated surface is washed to remove all cellular components other than DNA which are bound to the surface, and the bound DNA is

> eluted from the surface. Lower concentrations of chaotrope in the DNA binding buffer are needed to bind DNA to the fluorinated surfaces.

Solid-phase/chaotrope separation is a less efficient way to purify nucleic acids than the method of present claims 32 and 33, which is basically a one-step procedure, e.g., as shown in Example 9 of the subject application. The example discloses that DNA is running through the column without employing chaotropic substances and, so, the purified DNA is obtained in the eluate, directly, i.e., no further purification is required such as would be necessary to remove the chaotropic substances present in the EP'777 buffer-containing eluate.

The EP'777 invention requires the use of chaotropic agents in the buffer used for eluting nucleic acids from fluorinated solid phase. Consequently, not using chaotropic agents—in the EP'777 method—would destroy the invention on which EP'777 is based. In an obviousness analysis, a reference can not be combined with another reference in such a way that destroys the invention on which one of the references is based. *Hartmann, supra*. Therefore, the combination of Kosaka and EP'777 also requires the use of chaotropic agents.

> It is impermissible within the framework of §103 to pick and choose from any one reference only so much of it as will support a given position, to the exclusion of other parts necessary to the full appreciate of what such reference fairly suggests to one of ordinary skill in the art.

Hedges, 228 USPQ at 687. The totality of each reference's teachings must be considered when combining those teachings with the rest of the prior art. *W. L. Gore & Assoc., Inc. v. Garlock, Inc.*, 220 USPQ 303, 311 (Fed. Cir. 1983), *cert. denied*, 469 U.S. 851 (1984).

Claims 32 and 33 include negative limitation "in the absence of chaotropic substances," i.e., the use of chaotropic substances is excluded from the scope of claims 32 and 33. Not only do none of the cited references support the requirement to exclude chaotropic substances from use in a chromatographic separation, their combined teachings require that chaotropic substances be included in a chromatographic separation. Since "the cited references do not support each limitation" of claims 32 and 33, applying the §103(a) rejection against claims 32 and 33 would be "inadequate on its face." *In re Thrift*, 63 USPQ2d 2002, 2008 (Fed. Cir. 2002). To establish *prima facie* obviousness of a claimed invention, all the claim limitations must be taught or suggested by the prior art. *Royka, supra.*

Moreover, the presently claimed method is more simple than the method disclosed in EP'777, since the present claims provide a one-step separation of proteins and other cell components from nucleic acids. Therefore, it would not have been obvious from EP'777, taken alone or in combination with Kosaka and Carstens, to exclude chaotropic-agent-containing buffers from the chromatographic purification of nucleic acids.

Also, Carstens discloses a composite material comprising a cementitious matrix and a reinforcing component. The reinforcing component, which can be a cross-linkable compound having at least one olefinic double bond, is fluorinated prior to incorporation into the matrix. No mention is made of the surface of the support being covered with a hydrophobic polymer which is then fluorinated. Furthermore, Carstens neither teaches nor suggests a chromatographic material suitable for the separation of molecules, let alone the separation of bio-molecules—the technical field of

Kosaka and EP'777. Carstens relates to production of building materials and is, therefore, in a different technical field than the preparation and use of a chromatographic material for the separation of bio-molecules.

In any event, Carstens teaches fluorination, using fluorine in nitrogen or xenon difluoride, and is completely silent with respect to avoidance of chaotropic salts when trying to separate nucleic acids from other cell components. Thus, also the combination of Kosaka, EP-777 as well as Carstens does not render obvious the subject matter of present claims 32 and 33.

Favorable action is requested.

Respectfully submitted,

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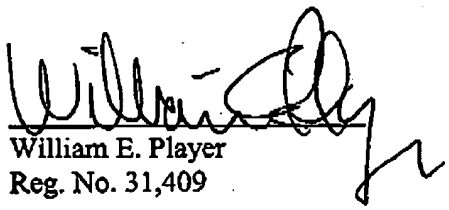
By 

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